

**IN THE CLAIMS:**

This listing of claims will replace all prior versions, and listings, of claims in the application:

Claims 1, 3-11 and 14-16 have been amended as follows:

**Listing of Claims:**

Claim 1 (currently amended): A method for ~~transforming head surface coordinates to brain surface coordinates~~, transcranial measurement of brain function, comprising the steps of:

preparing image data obtained by taking simultaneously images of a plurality of markers set up at positions on a head surface and a brain surface image; and

projecting the positions at the markers on the head surface which are positioned on a three-dimensional head image in the data onto positions on the brain surface, which are positions underlying the positions on the head surface, for determining three-dimensional coordinate positions of the projected points, whereby transforming head surface coordinates to brain surface coordinates.

Claim 2 (original): The method according to claim 1, further comprising a step for normalizing the brain surface coordinates obtained from a plurality of subjects onto a standard brain.

Claim 3 (currently amended): The method according to claim 1 [[or 2]], wherein the step for projecting the positions on the head surface onto the positions on the brain surface is carried out by a minimum distance search method for determining the positions on the brain surface underlying

the positions of the respective markers on the head surface.

Claim 4 (currently amended): The method according to claim 1 [[or 2]], wherein the step for projecting the positions on the head surface onto the positions on the brain surface is carried out by a perpendicular projection method for determining the positions on the brain surface underlying the positions of the respective markers on the head surface.

Claim 5 (currently amended): The method according to claim 1 [[or 2]], wherein the step for projecting the positions on the head surface onto the positions on the brain surface is carried out by a head surface/brain interior reference dotted line segment connecting method for determining the positions on the brain surface underlying the positions of the respective markers on the head surface.

Claim 6 (currently amended): The method according to ~~any one of claims 1 to 5~~ claim 1, wherein the respective markers are not actually set up at the head surface, but they are calculated from head figure information to be virtually set up.

Claim 7 (currently amended): ~~A method comprising the steps of,~~ The method according to claim 1,

previously determining projected positions on the brain surface underlying positions to be standard points as the markers on the head surface by ~~any method according to any one of claims 1~~

~~to 6 the step for projecting the positions on the head surface onto the positions on the brain surface;~~

and

further comprising a step of calculating coordinates of arbitrary points or a set of the points on the head surface from relative positions with respect to the standard points on the head surface for determining their projected points or a set of the points on the brain surface.

Claim 8 (currently amended): ~~A method comprising the steps of,~~ The method according to claim 1,

previously determining projected positions on the brain surface underlying positions to be standard points as the markers on the head surface by ~~any method according to any one of claims 1 to 6~~ the step for projecting the positions on the head surface onto the positions on the brain surface;

further comprising steps of previously determining a probability distribution of the projected positions on the brain surface of the standard points from data of a plurality of subjects, and

determining brain surface coordinates obtained by projecting arbitrary points on the head surface onto the brain surface based on the standard points and their probability error information.

Claim 9 (currently amended): ~~A distance distribution measuring method for~~ The method according to claim 1, further comprising a step of determining a distance distribution between the head surface and the brain surface from head surface coordinates and the brain surface coordinates determined by ~~any method according to any one of claims 1 to 7~~ the step for projecting the positions on the head surface onto the positions on the brain surface.

Claim 10 (currently amended): A software program for realizing the method according to ~~any one of claims 1 to 9~~ claim 1.

Claim 11 (currently amended): A transcranial brain function measuring apparatus comprising:

a probe having an irradiation point for irradiating radial ray or electromagnetic wave from a head surface of a subject to ~~[[a]]~~ an interior thereof and a detection point for detecting an interaction of the irradiated radial ray or electromagnetic wave and a brain on the head surface; and

a data processor for analyzing a condition of the brain based on a signal detected by the detection point of the probe;

the data processor being provided with a coordinate transformation section for transforming positions on the head surface to brain surface coordinates with data obtained by transforming the head surface coordinates to the brain surface coordinates in accordance with ~~[[any ]]~~ the method according to ~~any one of claims 1 to 8~~ claim 1, whereby a position on the head surface decided by the irradiation point and the detection point are transformed to the brain surface coordinates, and the analysis data based on the signal detected by the detection point is displayed on the transformed brain coordinates.

Claim 12 (original): The transcranial brain function measuring apparatus according to claim 11, wherein the transcranial brain function measuring apparatus is a light measuring apparatus; and the probe is provided with light delivery point(s) as the irradiation points for emitting light and light

reception point(s) as the detection points for receiving the light to be discharged to the outside after transmitting through and/or being reflected by the subject.

Claim 13 (original): The transcranial brain function measuring apparatus according to claim 12, wherein the light measuring apparatus is a multi-channel light measuring apparatus in which a plurality of the light delivery points and a plurality of the light reception points are disposed on the head surface, respectively.

Claim 14 (currently amended): The transcranial brain function measuring apparatus according to claim [[12 or]] 13, wherein the light emitted from the light delivery ~~point(s)~~ points to the subject is a light in a near-infrared region.

Claim 15 (currently amended): The transcranial brain function measuring apparatus according to ~~any one of claims 11 to 14~~ claim 13, wherein the position on the head surface determined by the irradiation point and the detection point corresponds to the central position along a straight line connecting these two points to each other.

Claim 16 (currently amended): [[A]] The transcranial brain function measuring apparatus ~~comprising:~~ according to claim 11,

~~a probe having an irradiation point for irradiating radial ray or electromagnetic wave from a head surface of a subject to a interior thereof and a detection point for detecting an interaction of~~

~~the irradiated radial ray or electromagnetic wave and a brain on the head surface, and~~

~~a data processor for analyzing a condition of the brain based on a signal detected by the  
detection point of the probe;~~

wherein a distances between the irradiation point and the detection point is decided in such  
that a detection sensitivity at the detection point as a result of an interaction of the electromagnetic  
wave or the radial ray from the irradiation point and the brain on the surface thereof becomes the  
maximum on the basis of the distance distribution between the head surface and the brain surface  
determined ~~in claim 9~~ by the step for projecting the positions on the head surface onto the positions  
on the brain surface.